29

## **CLAIMS**

A pesticidally active combination comprising an HPPD-inhibiting herbicide in the
 form of an agrochemically acceptable salt and an insecticide, provided that the HPPD-inhibiting herbicide is not a compound of formula (A)

$$R^{a}$$
 $R^{a}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{b}$ 
 $R^{b}$ 
 $R^{b}$ 
 $R^{a}$ 
 $R^{b}$ 
 $R^{b$ 

wherein R<sup>a</sup> is C<sub>1-2</sub> alkyl or chloro; R<sup>b</sup> is hydrogen or C<sub>1-4</sub> alkyl; and R<sup>c</sup> is C<sub>1-4</sub> alkyl.

2. A pesticidally active combination according to claim 1, wherein the HPPD-inhibiting herbicide is selected from the group consisting of isoxazole, triketones, pyrazoles, benzobicyclon and ketospiradox.

15 3. A pesticidally active combination according to claim 2, wherein the isoxazole is a compound of formula (IA)

wherein R is hydrogen or -CO<sub>2</sub>R<sup>3</sup>;

10

20

 $R^1$  is  $C_{1-4}$  alkyl or  $C_{3-6}$  cycloalkyl optionally substituted by  $C_{1-6}$  alkyl;

 $R^2$  is independently selected from halogen, nitro, cyano,  $C_{1-4}$  alkyl,  $C_{1-4}$  haloalkyl,  $C_{1-6}$  alkoxy,  $C_{1-4}$  haloalkoxy,  $-(CR^4R^5)_cS(O)_bR^6$ ,  $-S(O)_bR^6$ ,  $-OSO_2R^6$  and  $-N(R^7)SO_2R^6$ ;

or two groups R<sup>2</sup>, on adjacent carbon atoms of the phenyl ring may, together with the carbon atoms to which they are attached, form a 5- or 6-membered saturated or unsaturated heterocyclic ring containing up to three ring heteroatoms selected from nitrogen, oxygen and sulphur, which ring may be optionally substituted by one or more groups selected from halogen, nitro, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> haloalkyl, C<sub>1-4</sub> haloalkoxy and -S(O)<sub>b</sub>R<sup>6</sup>, it being understood that a sulphur atom, where present in the ring, may be in the form of a group -SO- or -SO<sub>2</sub>-;

R<sup>3</sup> is C<sub>1-4</sub> alkyl;

5

10

15

25

 $R^4$  and  $R^5$  are independently hydrogen or  $C_{1\cdot 4}$  alkyl;

 $R^6$  is  $C_{1-4}$  alkyl, or phenyl or benzyl, each of phenyl and benzyl optionally bearing from one or five substituents which may be the same of different selected from the group consisting of halogen,  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy,  $C_{1-4}$  haloalkyl,  $C_{1-4}$  haloalkoxy, nitro and  $-S(O)_bCH_3$ ;

R<sup>7</sup> is hydrogen or C<sub>1-6</sub> alkyl;

a is an integer from one to five;

b is zero, one or two; and

c is one or two (where c is two, the groups (CR<sup>4</sup>R<sup>5</sup>) may be the same or different.

- 4. A pesticidally active combination according to claim 3, wherein R is hydrogen; R<sup>1</sup> is cyclopropyl; R<sup>2</sup> is halogen (preferably chloro), -S(O)<sub>b</sub>CH<sub>3</sub>, or C<sub>1-4</sub> haloalkyl (preferably trifluoromethyl); and a is two.
  - 5. A pesticidally active combination according to claim 2 wherein the triketone is a compound of formula (IB),

$$(R^8)_d \xrightarrow{Q} (R^{10})_e$$
 (IB)

wherein each R<sup>8</sup> independently represents (C<sub>1-4</sub>)alkyl or -CO<sub>2</sub>R<sup>11</sup>;

5

10

15

20

25

PCT/EP2004/012417

R<sup>9</sup> represents a halogen atom; a straight- or branched-chain alkyl or alkoxy group containing up to six carbon atoms which is optionally substituted by one or more groups -OR<sup>12</sup> or one or more halogen atoms; or a group selected from nitro, cyano, -CO<sub>2</sub>R<sup>13</sup>, -S(O)<sub>1</sub>R<sup>12</sup>, -O(CH<sub>2</sub>)<sub>g</sub>OR<sup>12</sup>, -COR<sup>13</sup>, -NR<sup>13</sup>R<sup>14</sup>, -SO<sub>2</sub>NR<sup>13</sup>R<sup>14</sup>, -CONR<sup>13</sup>R<sup>14</sup>, -CSNR<sup>13</sup>R<sup>14</sup> and -OSO<sub>2</sub>R<sup>15</sup>;

each R<sup>10</sup> independently represents halo, nitro, cyano, S(O)<sub>f</sub>R<sup>16</sup>, OS(O)<sub>f</sub>R<sup>16</sup>, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkyl, C<sub>1-6</sub> haloalkoxy, carboxy, C<sub>1-6</sub> alkylcarbonyloxy, C<sub>1-6</sub> alkylcarbonyloxy, C<sub>1-6</sub> alkylcarbonyl, amino, C<sub>1-6</sub> alkylamino, C<sub>1-6</sub> dialkylamino having independently the stated number of carbon atoms in each alkyl group, C<sub>1-6</sub> alkylaminocarbonylamino, C<sub>1-6</sub> alkylaminocarbonylamino, C<sub>1-6</sub> dialkylaminocarbonylamino having independently the stated number of carbon atoms in each alkyl group, C<sub>1-6</sub> alkoxycarbonyloxy, C<sub>1-6</sub> alkylaminocarbonyloxy, C<sub>1-6</sub> dialkylcarbonyloxy, phenylcarbonyloxy, substituted phenylcarbonyloxy, phenylcarbonyloxy, phenylcarbonylamino, substituted phenylcarbonylamino, phenoxy or substituted phenoxy;

R<sup>11</sup> is C<sub>1-4</sub> alkyl;

R<sup>12</sup> represents a straight- or branched-chain alkyl group containing up to six carbon atoms which is optionally substituted by one or more halogen atoms;

R<sup>13</sup> and R<sup>14</sup> each independently represents a hydrogen atom; or a straight- or branched-chain alkyl group containing up to six carbon atoms which is optionally substituted by one or more halogen atoms;

R<sup>15</sup> represents a straight-or branched-chain alkyl, alkenyl or alkynyl group containing up to six carbon atoms optionally substituted by one or more halogen atoms; or a cycloalkyl group containing from three to six carbon atoms;

R<sup>16</sup> represents a straight- or branched-chain alkyl group contining up to six carbon atoms which is optionally substituted by one or more halogen atoms;

d is zero or an integer from one to six;

e is zero or an integer from one to four;

32

f is zero, one or two; and g is one, two or three.

- 6. A pesticidally active combination according to claim 5, wherein R<sup>9</sup> is chloro, bromo, nitro, cyano, C<sub>1-4</sub> alkyl, -CF<sub>3</sub>, -S(O)<sub>f</sub>R<sup>12</sup>, or -OR<sup>12</sup>; each R<sup>10</sup> is independently chloro, bromo, nitro, cyano, C<sub>1-4</sub> alkyl, -CF<sub>3</sub>, -OR<sup>12</sup>, -OS(O)<sub>f</sub>R<sup>16</sup> or -S(O)<sub>f</sub>R<sup>16</sup>; d is zero and e is one or two.
- 7. A pesticidally active combination according to claim 2, wherein the triketone is a compound of formula (IC)

$$R^{21}$$
  $R^{20}$   $R^{24}$   $R^{25}$   $R^{25}$   $R^{25}$   $R^{25}$   $R^{26}$ 

10

15

20

25

5

wherein V is  $C_{1-2}$  alkylene, which may be mono- or poly-substituted by  $R^{29}$ ; or, when  $R^{21}$  and  $R^{22}$  are other than  $C_{2-3}$  alkylene, W may additionally be carbonyl, oxygen or  $-NR^{30}$ -; W is  $CR^{31}$  or  $N(O)_8$ ;

R<sup>20</sup>, R<sup>21</sup>, R<sup>22</sup> and R<sup>23</sup> are independently hydrogen, C<sub>1-4</sub> alkyl, phenyl, C<sub>1-4</sub> alkoxy, halogen, hydroxy, cyano, hydroxycarbonyl or C<sub>1-4</sub> alkoxycarbonyl; or R<sup>21</sup> and R<sup>22</sup> together are C<sub>2-3</sub> alkylene, which may be mono- or poly-substituted by R<sup>28</sup>;

R<sup>24</sup> is hydrogen, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>1-2</sub> alkoxycarbonyl- or phenyl-substituted vinyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, trimethylsilyl-, hydroxy-, C<sub>1-6</sub> alkoxy-, C alkoxycarbonyl- or phenyl-substituted ethynyl, C<sub>3-6</sub> allenyl, C<sub>3-6</sub> cycloalkyl, halo- or C<sub>1-3</sub> alkoxymethyl-substituted C<sub>3-6</sub> cycloalkyl, C<sub>1-6</sub> alkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> alkynyloxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> haloalkenyloxy, cyano-C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkylsulfinyl-C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkoxy, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylthio, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylthio, C<sub>1-4</sub> alkoxycarbonyl-C<sub>1-4</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-3</sub> alkylsulfinyl, C<sub>1-3</sub> alkylsulfinyl, C<sub>1-3</sub> alkylsulfinyl, C<sub>1-3</sub>

33

alkoxy-C<sub>1-3</sub> alkyl-N(C<sub>1-3</sub> alkyl), C<sub>1-6</sub> alkylaminosulfonyl, di(C<sub>1-6</sub> alkyl)aminosulfonyl, C<sub>1-4</sub> alkylsulfonyloxy, C<sub>1-4</sub> alkylsulfonylamino, C<sub>1-4</sub> alkylsulfonyl-N(C<sub>1-4</sub> alkyl), cyano, carbamoyl, C<sub>1-4</sub> alkoxycarbonyl, formyl, halogen, rhodano, amino, hydroxy-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylthio-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfinyl-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfonyl-C<sub>1-4</sub> alkyl, cyano-C<sub>1-4</sub> alkyl, C<sub>1-6</sub> alkylcarbonyloxy-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkyl, rhodano-C<sub>1-4</sub> alkyl, phenyl-C<sub>1-4</sub> alkyl, phenoxy-C<sub>1-4</sub> alkyl, benzyloxy-C<sub>1-4</sub> alkyl, thodano-C<sub>1-4</sub> alkyl, (2-oxiranyl)-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkyl, di(C<sub>1-4</sub> alkyl)amino-C<sub>1-4</sub> alkyl, C<sub>1-12</sub> alkylthiocarbonyl-C<sub>1-4</sub> alkyl or formyl-C<sub>1-4</sub> alkyl, or benzylthio, benzylsulfinyl, benzylsulfonyl, benzyloxy, benzyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, wherein the phenylcontaining groups may themselves be substituted by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro; or

5

10

15

20

25

30

R<sup>24</sup> is a three- to ten-membered monocyclic or fused bicyclic ring system, which may be aromatic, saturated or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, wherein the ring system is bonded to the group W-containing aromatic ring by way of a C<sub>1-4</sub> alkylene, C<sub>2-4</sub> alkenylene or C<sub>2-4</sub> alkynylene bridge which may be interrupted by oxygen, -N(C<sub>1-4</sub> alkyl)-, sulfur, sulfurly, sulfornyl or by carbonyl, and each ring system may contain no more than two oxygen atoms and no more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by  $C_{1-6}$ alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> alkynyloxy, hydroxy, mercapto, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> haloalkylthio, C<sub>3-6</sub> alkenylthio, C<sub>3-6</sub> haloalkenylthio, C<sub>3-6</sub> alkynylthio, C<sub>1-4</sub> alkoxy-C<sub>1-3</sub> alkylthio, C<sub>1-4</sub> alkylcarbonyl-C<sub>1-3</sub> alkylthio, C<sub>1-4</sub> alkoxycarbonyl-C<sub>1-3</sub> alkylthio, cyano-C<sub>1-3</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>1-6</sub> haloalkylsulfonyl, aminosulfonyl, C<sub>1.4</sub> alkylaminosulfonyl, di(C<sub>1.4</sub> alkyl)aminosulfonyl, di(C<sub>1.4</sub> alkyl)amino, halogen, cyano, nitro, phenyl and/or by benzylthio, wherein phenyl and benzylthio may themselves be substituted on the phenyl ring by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro, and wherein substituents on the nitrogen in the heterocyclic ring are other than halogen; or

 $R^{24}$  is the group  $-D_1-D_3$  or the group  $-D_2-D_1-D_3$ :

R<sup>25</sup> is hydrogen, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, C<sub>3-6</sub> cycloalkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylsulfonyl, C<sub>1-6</sub> alkylsulfonyloxy, hydroxy, mercapto, amino, C<sub>1-6</sub> alkylamino, di(C<sub>1-6</sub> alkyl)amino, C<sub>1-4</sub> alkylsulfonylamino, C<sub>1-4</sub> alkylsulfonyl-N(C<sub>1-4</sub> alkyl)-, C<sub>1-6</sub> alkylaminosulfonyl, di(C<sub>1-6</sub> alkyl)aminosulfonyl, cyano, halogen, C<sub>1-4</sub> alkoxy-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfinyl-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfonyl-C<sub>1-4</sub> alkyl, triazolyl, phenyl, phenylthio, phenylsulfinyl, phenylsulfonyl or phenoxy, wherein the phenylcontaining groups may be substituted by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro;

R<sup>26</sup> is hydrogen, C<sub>1-6</sub> alkyl, hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> haloalkenyloxy, C<sub>3-6</sub> alkynyloxy, C<sub>1-4</sub> alkylcarbonyloxy, C<sub>1-4</sub> alkylsulfonyloxy, phenylsulfonyloxy, C<sub>1-4</sub> alkylthio, C<sub>1-4</sub> alkylsulfinyl, C<sub>1-4</sub> alkylsulfonyl, C<sub>1-4</sub> alkylsulfonyl, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, C<sub>1-4</sub> alkoxycarbonyl, C<sub>1-4</sub> haloalkyl, formyl, cyano, halogen, phenyl or phenoxy, wherein the phenyl-containing groups may themselves be substituted by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro; or

R<sup>26</sup> is a three- to ten-membered monocyclic or, together with R<sup>25</sup> or R<sup>27</sup>, fused bicyclic ring system, which may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, wherein, when the ring system is not fused, it is bonded to the W-containing aromatic ring, either directly or by way of a C<sub>1-4</sub> alkylene, C<sub>2-4</sub> alkenylene or C<sub>2-4</sub> alkynylene bridge which may be interrupted by oxygen, -N(C<sub>1-4</sub> alkyl)-, sulfur, sulfinyl, sulfonyl or by carbonyl, and the ring system may contain no more than two oxygen atoms and no more than two sulfur atoms, and the ring system may itself be mono-, di- or trisubstituted by C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> alkynyloxy, C<sub>1-6</sub> alkylthio, C<sub>1-4</sub> alkylthio, C<sub>1-4</sub> alkoxy-C<sub>1-2</sub> alkylthio, C<sub>1-4</sub> alkylcarbonyl-C<sub>1-2</sub> alkylthio, C<sub>1-4</sub> alkoxycarbonyl-C<sub>1-2</sub> alkylthio, cyano-C<sub>1-4</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, aminosulfonyl, C<sub>1-6</sub> alkylaminosulfonyl, di(C<sub>1-4</sub> alkyl)aminosulfonyl, amino, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, halogen, cyano, nitro, phenyl and by/or benzylthio, wherein phenyl and

35

benzylthio may themselves be substituted on the phenyl ring by  $C_{1-3}$  alkyl,  $C_{1-3}$  haloalkyl,  $C_{1-3}$  alkoxy,  $C_{1-3}$  haloalkoxy, halogen, cyano or by nitro, and wherein substituents on the nitrogen in the heterocyclic ring are other than halogen;

R<sup>27</sup> is hydrogen, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, C<sub>3-6</sub> cycloalkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, amino, C<sub>1-6</sub> alkylamino, di(C<sub>1-6</sub> alkyl)amino, C<sub>1-4</sub> alkylsulfonyl-N(C<sub>1-4</sub> alkyl)-, C<sub>1-6</sub> alkylaminosulfonyl, di(C<sub>1-6</sub> alkyl)aminosulfonyl, cyano, halogen, C<sub>1-4</sub> alkoxy-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylthio-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfinyl-C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylsulfonyl-C<sub>1-4</sub> alkyl, phenylthio, phenylsulfinyl, phenylsulfonyl or phenoxy, wherein phenyl groups may themselves be substituted by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro;

 $R^{28}$  and  $R^{29}$  are each independently hydrogen,  $C_{14}$  alkyl, phenyl,  $C_{14}$  alkoxy, halogen, hydroxy, cyano, hydroxycarbonyl or  $C_{14}$  alkoxycarbonyl;

 $R^{30}$  is  $C_{1-4}$  alkyl, alkoxycarbonyl or  $C_{1-4}$  alkylcarbonyl;

5

10

15

20

25

30

R<sup>31</sup> is hydrogen, C<sub>1-6</sub> alkyl, hydroxy, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> haloalkenyloxy, C<sub>3-6</sub> alkynyloxy, C<sub>1-4</sub> alkylcarbonyloxy, C<sub>1-4</sub> alkylsulfonyloxy, phenylsulfonyloxy, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>1-6</sub> alkylamino, di(C<sub>1-6</sub> alkyl)amino, C<sub>1-3</sub> alkoxy-C<sub>1-3</sub> alkylamino, C<sub>1-3</sub> alkoxy-C<sub>1-3</sub> alkyl-N(C<sub>1-3</sub> alkyl)-, C<sub>1-4</sub> alkoxycarbonyl, C<sub>1-6</sub> haloalkyl, formyl, cyano, halogen, phenyl or phenoxy, wherein the phenyl-containing groups may themselves be substituted by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro;

or R<sup>31</sup> is a three- to ten-membered monocyclic or, together with R<sup>24</sup> or R<sup>25</sup> fused bicyclic ring system, which may be interrupted once or up to three times by heterocyclic substituents selected from oxygen, sulfur, S(O), SO<sub>2</sub>, N(R<sup>32</sup>), carbonyl and C(=NOR<sup>33</sup>), and wherein, when the ring system is not fused, it is bonded to the carbon atom of the substituent W, either directly or by way of a C<sub>1-4</sub> alkylene, C<sub>2-4</sub> alkenylene or C<sub>2-4</sub> alkynylene bridge which may be interrupted by oxygen, -N(C<sub>1-4</sub> alkyl)-, sulfur, sulfinyl or by sulfonyl, and the ring system may contain no more than two oxygen atoms and no more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C<sub>1-6</sub> alkyl, C<sub>1-6</sub>

5

10

15

20

25

30

haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> haloalkynyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkynyl, C<sub>1-6</sub> haloalkylthio, C<sub>3-6</sub> alkenylthio, C<sub>3-6</sub> alkynyloxy, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> haloalkylthio, C<sub>3-6</sub> alkenylthio, C<sub>3-6</sub> alkynylthio, C<sub>1-4</sub> alkoxy-C<sub>1-2</sub> alkylthio, C<sub>1-4</sub> alkylcarbonyl-C<sub>1-2</sub> alkylthio, C<sub>1-4</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>1-6</sub> haloalkylsulfonyl, aminosulfonyl, C<sub>1-4</sub> alkylaminosulfonyl, di(C<sub>1-4</sub> alkyl)aminosulfonyl, di(C<sub>1-4</sub> alkyl)amino, halogen, cyano, nitro, phenyl, benzyloxy and/or by benzylthio, and wherein the phenyl-containing groups may themselves be substituted on the phenyl ring by C<sub>1-3</sub> alkyl, C<sub>1-3</sub> haloalkyl, C<sub>1-3</sub> alkoxy, C<sub>1-3</sub> haloalkoxy, halogen, cyano or by nitro, and wherein substituents on the nitrogen in the heterocyclic ring are other than halogen;

or  $R^{31}$  is the group  $-D_4$ - $D_6$  or the group  $-D_5$ - $D_4$ - $D_6$ ;

R<sup>32</sup> is hydrogen, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylthio-C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkylsulfinyl-C<sub>1-4</sub> - alkylcarbonyl, C<sub>1-4</sub> alkylsulfonyl-C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkylcarbonyl, phenylcarbonyl or phenyl, wherein the phenyl groups may themselves be substituted by C<sub>1-4</sub> alkyl, C<sub>1-4</sub> haloalkyl, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> haloalkoxy, C<sub>1-4</sub> alkylcarbonyl, C<sub>1-4</sub> alkoxycarbonyl, C<sub>1-4</sub> alkylamino, di(C<sub>1-4</sub> alkyl)amino, C<sub>1-4</sub> alkylthio, C<sub>1-4</sub> alkylsulfinyl, C<sub>1-4</sub> alkyl-SO<sub>2</sub>, C<sub>1-4</sub> alkyl-S(O)<sub>2</sub>O, C<sub>1-4</sub> haloalkylthio, C<sub>1-4</sub> haloalkylsulfinyl, C<sub>1-4</sub> haloalkyl-SO<sub>2</sub>, C<sub>1-4</sub> haloalkyl-S(O)<sub>2</sub>O, C<sub>1-4</sub> alkyl-S(O)<sub>2</sub>NH, C<sub>1-4</sub> alkyl-S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)-, halogen, nitro or by cyano;

R<sup>33</sup> is hydrogen, C<sub>1.4</sub> alkyl, C<sub>3.4</sub> alkenyl, C<sub>3.4</sub> alkynyl or benzyl;

h is 0 or 1;

 $D_1$  is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(C<sub>1-4</sub> alkyl)-O-, -O-N(C<sub>1-4</sub> alkyl)-, thio, sulfinyl, sulfonyl, -SO<sub>2</sub>N(C<sub>1-4</sub> alkyl)-, -N(C<sub>1-4</sub> alkyl)SO<sub>2</sub>-, -N(C<sub>1-2</sub> alkoxy-C<sub>1-2</sub> alkyl)SO<sub>2</sub>- or -N(C<sub>1-4</sub> alkyl)-;

 $D_2$  is a  $C_{1-6}$  alkylene,  $C_{3-6}$  alkenylene or  $C_{3-6}$  alkynylene chain, which may be monoor poly-substituted by halogen or by  $D_7$ , the unsaturated bonds of the chain not being bonded directly to the substituent  $D_1$ ;

D<sub>3</sub> and D<sub>6</sub> are each independently of the other a C<sub>1-8</sub> alkyl, C<sub>3-6</sub> alkenyl or C<sub>3-6</sub> alkynyl group, which may be mono- or poly-substituted by halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkoxycarbonyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> haloalkynyl, C<sub>3-6</sub> cycloalkyl, halo-substituted C<sub>3-6</sub> cycloalkyl, C<sub>3-6</sub>

37

alkenyloxy, C<sub>3-6</sub> alkynyloxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> haloalkenyloxy, cyano-C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> alkylsulfinyl, oxiranyl which may itself be substituted by C<sub>1-6</sub> alkyl, (3-oxetanyl)-oxy which may itself be substituted by C<sub>1-6</sub> alkyl, benzyloxy, benzylthio, benzylsulfinyl, benzylsulfonyl, C<sub>1-6</sub> alkylamino, di(C<sub>1-6</sub> alkyl)amino, C<sub>1-4</sub> alkyl-S(O)<sub>2</sub>O, di(C<sub>1-4</sub> alkyl)aminosulfonyl, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl or by phenylsulfonyl, and wherein the phenyl- or benzyl-containing groups may themselves be substituted by one or more C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, halogen, cyano, hydroxy or nitro groups; or

5

10

15

20

25

30

 $D_3$  and  $D_6$  are each independently of the other phenyl, which may be mono- or polysubstituted by  $C_{1-6}$  alkyl,  $C_{1-6}$  haloalkyl,  $C_{1-6}$  alkoxy,  $C_{1-6}$  haloalkoxy, halogen, cyano, hydroxy or by nitro; or

 $D_3$  and  $D_6$  are each independently of the other  $C_{3-6}$  cycloalkyl,  $C_{1-6}$  alkoxy- or  $C_{1-6}$  alkyl-substituted  $C_{3-6}$  cycloalkyl, 3-oxetanyl or  $C_{1-6}$  alkyl-substituted 3-oxetanyl; or

D<sub>3</sub> and D<sub>6</sub> are each independently of the other a three- to ten-membered monocyclic or fused bicyclic ring system, which may be aromatic, saturated or partially saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen and sulfur, wherein the ring system is bonded to the substituent D<sub>1</sub> or D<sub>4</sub> directly or by way of a C<sub>1-4</sub> alkylene, C<sub>2-4</sub> alkenylene, C<sub>2-4</sub> alkynylene, -N(C<sub>1-4</sub> alkyl)-C<sub>1-4</sub> alkylene, -S(O)-C<sub>1-4</sub> alkylene or -SO<sub>2</sub>-C<sub>1-4</sub> alkylene group, and each ring system may contain no more than two oxygen atoms and no more than two sulfur atoms, and the ring system may itself be mono-, di- or tri-substituted by C<sub>1-6</sub> alkyl, C<sub>1-6</sub> haloalkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> haloalkenyl, C<sub>2-6</sub> haloalkynyl, C<sub>1-6</sub> alkoxy, hydroxy, C<sub>1-6</sub> haloalkoxy, C<sub>3-6</sub> alkenyloxy, C<sub>3-6</sub> alkynyloxy, mercapto, C<sub>1-6</sub> alkylthio, C<sub>1-6</sub> haloalkylthio, C<sub>3-6</sub> alkenylthio, C<sub>3-6</sub> haloalkenylthio, C<sub>3-6</sub> alkynylthio, C<sub>1-3</sub> alkoxy-C<sub>1-3</sub> alkylthio, C<sub>1-4</sub> alkylcarbonyl-C<sub>1-2</sub> alkylthio, C<sub>1-4</sub> alkoxycarbonyl-C<sub>1-2</sub> alkylthio, cyano-C<sub>1-3</sub> alkylthio, C<sub>1-6</sub> alkylsulfinyl, C<sub>1-6</sub> haloalkylsulfinyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>1-6</sub> haloalkylsulfonyl, aminosulfonyl, C<sub>1-6</sub> alkylaminosulfonyl, di(C<sub>1-2</sub> alkyl)aminosulfonyl, di(C<sub>1-4</sub> alkyl)amino, C<sub>1-6</sub> carbonylamino, halogen, cyano, nitro, phenyl, benzyloxy and/or by benzylthio, wherein

the phenyl groups may themselves be substituted on the phenyl ring by  $C_{1-3}$  alkyl,  $C_{1-3}$  haloalkyl,  $C_{1-3}$  alkoxy,  $C_{1-3}$  haloalkoxy, halogen, cyano or by nitro, and wherein the substituents on the nitrogen in the heterocyclic ring are other than halogen;

D<sub>4</sub> is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N( $C_{1-4}$  alkyl)-O-, -O-N( $C_{1-4}$  alkyl)-, sulfur, sulfinyl, sulfonyl, -SO<sub>2</sub>N( $C_{1-4}$  alkyl)-, -N( $C_{1-4}$  alkyl)SO<sub>2</sub>-, -N( $C_{1-2}$  alkoxy- $C_{1-2}$  alkyl)SO<sub>2</sub>- or -N( $C_{1-4}$  alkyl)-;

 $D_5$  is a  $C_{1-6}$  alkylene,  $C_{3-6}$  alkenylene or  $C_{3-6}$  alkynylene chain, which may be monoor poly-substituted by halogen or by  $D_8$ , the unsaturated bonds of the chain not being bonded directly to the substituent  $D_4$ ;

 $D_7$  and  $D_8$  are each independently of the other hydroxy,  $C_{1-6}$  alkoxy,  $(C_{3-6}$  cycloalkyl)oxy,  $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy- $C_{1-6}$  alkoxy or  $C_{1-6}$  alkylsulfonyloxy;

and agronomically acceptable salts/N-oxides/isomers/enantiomers of such compounds.

15

10

5

8. A pesticidally active combination according to claim 2, wherein the triketone is a compound of formula (ID)

wherein  $R^{34}$  and  $R^{35}$  are both hydrogen or together form an ethylene bridge.

20

9. A pesticidally active combination according to claim 2, wherein the pyrazole is a compound of formula (IE)

wherein  $R^{36}$ ,  $R^{37}$ ,  $R^{38}$  and  $R^{39}$  are each independently selected from hydrogen, halo or  $C_{1.4}$  alkyl;

X is  $-SO_2$ - or  $-CH_2CO$ -;

j is 2 or 3; and

5

10

k is zero or 1.

- 10. A pesticidally active combination according to claim 8, wherein R<sup>36</sup>, R<sup>37</sup>, R<sup>38</sup> and R<sup>39</sup> are each independently hydrogen, chloro or methyl.
- 11. A pesticidally active combination according to claim 2, wherein the HPPD-inhibiting herbicide is a compound of formula (IF)

WO 2005/053407

12. A pesticidally active combination according to claim 2, wherein the HPPD-inhibiting herbicide is a compound of formula (IG)

$$O CH_3 O (IG)$$

$$H_3C O S O$$

- 5 13. A pesticidally active combination according to any preceding claim, wherein the agrochemically acceptable salt is formed using amines, alkali metal bases, alkaline earth metal cases, quaternary ammonium bases and metal chelates.
- A pesticidally active combination according to any preceding claim, wherein the 14. insecticide is selected from the group consisting of Abamectin, Acephate, Acetamiprid, 10 Acrinathrin, Acrylonitrile, Alanycarb, Aldicarb, Aldoxycarb, Aldrin, Allethrin (1Risomers), Allyxycarb, Alpha-cypermethrin, Phosphine (Aluminium Phosphide), Amidithion, Aminocarb, Amiton, Amitraz, Anabasine, Athidathion, Azadirachtin, Azamethiphos, Azinphos-ethyl, Azinphos-methyl, Azothoate, Bacillus sphaericus, Bacillus thuringiensis, Bacillus thuringiensis delta endotoxins, Barium polysulfide, Bendiocarb, Benfuracarb, 15 Bensultap, Benzoximate, Beta-cyfluthrin, Beta-cypermethrin, Bifenthrin, Bioallethrin, Bioallethrin S-cyclopentenyl isomer, Biopermethrin, Bioresmethrin, Bistrifluron, Borax, Bromfenvinfos, Bromophos, Bromophos-ethyl, Bufencarb, Buprofezin, Butacarb, Butathiofos, Butocarboxim, Butonate, Butoxycarboxim, Cadusafos, Hydrogen cyanide, Calcium polysulfide, Camphechlor, Carbanolate, Carbaryl, Carbofuran, Carbon disulfide, 20 Carbon tetrachloride, Carbophenothion, Carbosulfan, Cartap, Chlorbicyclen, Chlordane, Chlordecone, Chlordimeform, Chlorethoxyfos, Chlorfenapyr, Chlorfenvinphos, Chlorfluazuron, Chloropicrin, Chlorphoxim, Chlorprazophos, Chlorpyrifos,

Chlorpyrifos-methyl, Chlorthiophos, Chromafenozide, Clothianidin, Coumaphos,

41

Coumithoate, Crotoxyphos, Crufomate, Cryolite, Cyanofenphos, Cyanophos, Cyanthoate, Cycloprothrin, Cyfluthrin, Cyhalothrin, Cypermethrin, Alpha-cypermethrin, Beta-Cypermethrin, Theta-cypermethrin, Zeta-cypermethrin, Cyphenothrin, Cyromazine, Dazomet, Bromo-DDT, DDT, pp'-DDT, Decarbofuran, Deltamethrin, Demephion,

- Demephion-O, Demephion-S, Demeton, Demeton-O, Demeton-S, Demeton-methyl,
  Demeton-O-methyl, Demeton-S-methyl, Demeton-S-methylsulphon, Diafenthiuron,
  Dialifos, Diazinon, Dicapthon, Dichlofenthion, Dichlorvos, Dicrotophos, Dicyclanil,
  Dieldrin, Diflubenzuron, Dimefox, Dimethoate, Dimethrin, Dimethylvinphos, Dimetilan,
  Dinex, Dinotefuran, Diofenolan, Dioxabenzofos, Dioxacarb, Dioxathion, Disulfoton,
- Dithicrofos, DNOC, Emamectin, EMPC, Empenthrin, Endosulfan, Endothion, EPN,
  Epofenonane, Esfenvalerate, Ethiofencarb, Ethion, Ethoate-methyl, Ethoprophos, Ethylene
  dibromide, Ethylene dichloride, Etofenprox, Etrimfos, Famphur, Fenchlorphos, Fenethacarb,
  Fenfluthrin, Fenitrothion, Fenobucarb, Fenoxycarb, Fenpirithrin, Fenpropathrin,
  Fensulfothion, Fenthion, Fenvalerate, Fipronil, Flonicamid, Flucofuron, Flucycloxuron,
- 15 Flucythrinate, Flucythrinate, Flucythrinate, Flufenprox, Flumethrin, Fluvalinate, Fonofos, Formetanate, Formothion, Fosmethilan, Fospirate, Fosthiazate, Fosthietan, Furathiocarb, Furethrin, gamma-HCH, GY-81, Halofenozide, Heptachlor, Heptenophos, Hexaflumuron, Hydramethylnon, Hydrogen cyanide, Hydroprene, Imidacloprid, Imiprothrin, Indoxacarb, IPSP, Isazofos, Isobenzan, Isodrin, Isofenphos, Isoprocarb, Isopropyl O-
- 20 (methoxyaminothiophosphoryl)salicylat, Isothioate, Isoxathion, Jodfenphos, Kelevan, Kinoprene, Lambda-cyhalothrin, Lirimfos, Lufenuron, Lythidathion, Phosphine, Malathion, Mazidox, Mecarbam, Mecarphon, Menazon, Mephosfolan, Mercurous chloride, Mesulfenfos, Metam, Methacrifos, Methamidophos, Methidathion, Methiocarb, Methocrotophos, Methomyl, Methoprene, Methothrin, Methoxychlor, Methoxyfenozide,
- 25 Methyl bromide, Methyl isothiocyanate, Metolcarb, Metoxadiazone, Mevinphos, Mexacarbate, Milbemectin, Mipafox, Mirex, Monocrotophos, Morphothion, Naled, Nicotine, Nifluridide, Nitenpyram, Nithiazine, Nitrilacarb, Novaluron, Ölsäure, Omethoate, Oxamyl, Oxydemeton-methyl, Oxydeprofos, Oxydisulfoton, Parathion, Parathion-methyl, Pentachlorophenol, Permethrin, Petroleum Öl, Phenkapton, Phenothrin, Phenthoate, Phorate,
- 30 Phosalone, Phosfolan, Phosmet, Phosnichlor, Phosphamidon, Phoxim, Phoxim-methyl,

42

Pirimetaphos, Pirimicarb, Pirimiphos-ethyl, Pirimiphos-methyl, Prallethrin, Primidophos, Profenofos, Promacyl, Promecarb, Propaphos, Propetamphos, Propoxur, Prothiofos, Prothoate, Pymetrozine, Pyraclofos, Pyrazophos, Pyresmethrin, Pyrethrins, Pyridaben, Pyridaphenthion, Pyrimidifen, Pyrimitate, Pyriproxyfen, Quinalphos, Quinalphos-methyl, Quinothion, Resmethrin, Rotenone, RU 15525, Sabadilla, Schradan, Silafluofen, Sodium 5 fluoride, Sodium hexafluorosilicate, Pentachlorophenol, Sophamide, Spinosad, Sulcofuron, Sulfluramid, Sulfotep, Sulfuryl fluoride, Sulprofos, Tau-fluvalinate, Tazimcarb, TDE, Tebufenozide, Tebupirimfos, Teflubenzuron, Tefluthrin, Temephos, TEPP, Terallethrin, Terbufos, Tetrachlorvinghos, Tetramethrin, Tetramethrin [(1R)- isomers], Thiaclogrid, 10 Thiamethoxam, Thicrofos, Thiocarboxime, Thiocyclam, Thiodicarb, Thiofanox, Thiometon, Thiosultap-sodium, Tolfenpyrad, Tralomethrin, Transfluthrin, Transpermethrin, Triazamate. Triazofos, Trichlorfon, Trichloronat, Tridec-4-enyl acetate, Trifenofos, Triflumuron, Trimethacarb, Triprene, Vamidothion, XMC, Xylylcarb, Spirodiclofen, Acetoprole, Fluacrypyrim, Pyridalyl, Noviflumuron, Flufenerim, Amidoflumet, Ethiprole, Acequinocyl,

- 15. A pesticidally active combination according to any preceding claim, which comprises one or more additional active ingredients.
- 20 16. A pesticidally active combination according to claim 14, wherein the one or more additional active ingredients are herbicides and/or safeners.

Etoxazole, Bifenazate, Spiromesifen and ZXI 8901.

15

17. A pesticidally active combination according to claim 15, wherein the one or more additional active ingredients are selected from the group consisting of atrazine,
25 terbuthylazine, metolachlor, s-metolachlor, benoxacor, furilazole, dichlormid, flurazole acetochlor, p-dimethenamid, glyphosate, cloquintocet, fluxofenim, nicosulfuron, rimsulfuron, foramsulfuron, isoxadifene, prosulfuron, primisulfuron, dicamba, trifloxysulfuron.

43

18. A method of controlling undesired plant growth in crops of useful plants, said method comprising the application of a pesticidally active combination comprising an HPPD-inhibiting herbicide in the form of an agrochemically acceptable salt and an insecticide.

5

19. A pesticidally active pre-mix composition comprising an HPPD-inhibiting herbicide in the form of an agrochemically acceptable salt and an insecticide.